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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,853	10/30/2003	Daniel Yellin	MP1483	9760

7590 12/27/2006  
Gregory E. Stanton  
MARSHALL, GERSTEIN & BORUN LLP  
Suite 6300, Sears Tower  
233 S. Wacker Drive  
Chicago, IL 60606-6357

EXAMINER
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CORRIELUS, JEAN B

ART UNIT	PAPER NUMBER
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2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

12/27/2006

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/697,853

Applicant(s)

YELLIN, DANIEL

Examiner

Jean B. Corrielus

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10/30/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-28 is/are allowed.
- 6) ☒ Claim(s) 1,12-14,29 and 34-38 is/are rejected.
- 7) ☒ Claim(s) 2-11 and 30-33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 4/21/05 and 10/30/03.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include reference sign 42 mentioned in the description page 6.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "40" has been used to designate both a multiplier and an accumulator see page 6, line 3 and fig. 2.

Fig. 2, box. 38, "despreader" is mistyped as "depreader".

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Yellin et al US Patent application publication No. 2003/0095588A1.

Yellin et al discloses a method and apparatus (Fig.1) comprising a multiplier incorporated in a circuit 18 considered as the claimed despreader to despread data within a baseband CDMA signal, said data associated with a desired user see abstract; a despreading sequence generator to generate a signal considered as the claimed "joint equalization/multi-user detection despreading sequence" for use by said multiplier "despreader" to despread said data see fig. 1.

As per claim 13 Yellin teaches a channel decoder 20 to decode an output of the multiplier "despreader" see fig. 1.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yellin et al US Patent application publication No. 2003/0095588A1 in view of Agami et al US patent No. 6,879,623.

As applied to claim 1 above, Yellin et al teaches every feature of the claimed invention but does not explicitly teach the further limitation of sampling the baseband

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signal using chip rate sampler at a chip rate before said signal reaches said despreader.

Agami et al teaches the further limitation of sampling the baseband signal using chip rate sampler 310 at a chip rate before said signal reaches said despreader 316-318.

Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Yellin so as to enhance signal detection.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yellin et al US Patent application publication No. 2003/0095588A1 in view of Wang US Patent application publication No.20040174939A1.

As applied to claims 1 and 13 above, Yellin et al teaches every feature of the claimed invention but does not explicitly teach the further limitation of a feedback path from an output of the channel decoder to allow decoded information to be re-encoded, interleaved and re-modulate for interference cancellation.

Wang teaches the further limitation of a feedback path from an output of the channel decoder 260 to allow decoded information to be re-encoded, interleaved and re-modulate for interference cancellation see fig. 2. Given that fact it would have been obvious to one skill in the art to incorporate such a teaching Yellin so as to ensure that the received signal is as closed as possible to the transmitted signal.

7. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yellin et al US Patent application publication No. 2003/0095588A1.

Yellin et al discloses a method and apparatus (Fig.1) comprising a multiplier incorporated in a circuit 18 considered as the claimed despreader to despread data within a baseband CDMA signal, said data associated with a desired user see abstract;

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a despreading sequence generator to generate a signal considered as the claimed "joint equalization/multi-user detection despreading sequence" for use by said multiplier "despreader" to despread said data see fig. 1. However, Yellin does not teach that plurality antennas are used to receive the CDMA signal. However configuring a receiver with a multiple antenna to receive the CDMA signal would have been in the purview of one of ordinary skill in the art. Therefore, it would have been obvious to modify Yellin by replacing the single antenna into a plurality of receive antennas in order to establish antenna diversity so as to improve signal reception.

8. Claims 34 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Massicote et al US Patent application publication No. 2004/0136444A1 in view of Frank US patent publication No. 2002/0136158A1

Massicote et al discloses a method and apparatus comprising receiving a CDMA signal see abstract detecting user data within said CDMA signal, wherein said detecting said user data includes processing said CDMA signal using a combination of equalizer and a MUD detector see fig. 5A. However, Massicote et al does not teach the used of MMSE algorithm in the receiver. However, as evidence by Frank, it is well known in the art to use the MMSE algorithm in a receiver see abstract. Given that fact, It would have been obvious to one skill in the art to implement such algorithm in Massicote in order to reduce system complexity as taught by Frank see paragraph 0086.

As per claim 37, the CDMA signal is inherently converted from RF to baseband before said processing so as to present the signal to a format to facilitate signal processing.

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9. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Massicote et al US Patent application publication No. 2004/0136444A1 in view of Frank US patent publication No. 2002/0136158A1 and further in view of Yellin et al US Patent application publication No. 2003/0095588A1.

As applied to claim 34 above Massicote and Frank teaches the invention substantially as claimed but does not explicitly teach the further limitation of processing the CDMA signal by obtaining a joint MMSE equalization and MUD despreading and despreading said user data using said joint MMSE equalization and MUD. Yellin et al discloses a method and apparatus (Fig.1) comprising a multiplier incorporated in a circuit 18 considered as the claimed despreader to despread data within a baseband CDMA signal, said data associated with a desired user see abstract; a despreading sequence generator to generate a signal considered as the claimed "joint equalization/multi-user detection despreading sequence" for use by said multiplier "despreader" to despread said data see fig. 1. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Massicote and Frank so as to provide the system with the capability to reconstruct the original signal.

10. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Massicote et al US Patent application publication No. 2004/0136444A1 in view of Frank US patent publication No. 2002/0136158A1 further in view of Yellin et al US Patent application publication No. 2003/0095588A1 and further in view of Ylitalo et al US patent publication No. 20030022636.

As applied to claim 35 above Massicote and Frank and Yellin teaches the

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invention substantially as claimed but does not explicitly teach the further limitation of channel decoding said user data after said despreading to generate decoded data and using at least some of said decoded data to perform interference cancellation. Ylitalo et al teaches the further limitation of channel decoding said user data after said despreading to generate decoded data and using at least some of said decoded data to perform interference cancellation see abstract. Given the fact, it would have been obvious to one skill in the art to incorporate such a teaching in Massicote and Frank and Yellin ensure that the received signal is as close as possible to the transmitted signal.

11. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Massicote et al US Patent application publication No. 2004/0136444A1 in view of Frank US patent publication No. 2002/0136158A1

As applied to claim 37 above, Massicote and Frank teaches the invention substantially as claimed but does not explicitly teach the further limitation of sampling the baseband signal using chip rate sampler at a chip rate before said signal reaches said despreader. Agami et al teaches the further limitation of sampling the baseband signal using chip rate sampler 310 at a chip rate before said signal reaches said despreader 316-318. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Massicote and Frank so as to enhance signal detection.

***Allowable Subject Matter***

12. Claims 15-28 are allowed.




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13. Claims 3-11 and 30-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Jean B Corrielus  
Primary Examiner  
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12-21-06